SAMPLING DATA

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: Celotex

Date of Original SSP: 9/26/97

Date of Amendment: 8/3/98

Date of proposed new work: 8/4/98 TDD/Pan/Project Number: SOS-9807-021 8U2101RAXX

Added Activities and hazard evaluation: Drum Sampling, Sludge Sampling, water Sampling, asphalt Sampling and Site reconnaissance

Added monitoring activities: Heat Stress Monitoring, Air Monitoring w/ CGI, PID

Level of Protection: ____ A __X__ B ____ C ____ D

Reason for up/downgrading: Known drums will be collected in level C

PPE: Saranex, Latex inner gloves, Nitrile outer gloves, booties, SCBA, Full Face APR

Decons: Alconox

Team Members	Responsibility
Brendan McLennan	Team Leader
Michelle Cullerton	Safety Officer

Equipment	Quantity	Equipment	Quantity
PID	1	Sampling Equipment	1
CGI	1	Gloves	1
Booties	1 pair	Cooler	1
Saranex	2 pair		

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: Brendan P. McLennan Date: 8/3/98

Approved by: Jonathan Bass Date: 8/3/98

INSTRUCTIONS: This form is to be approved through normal channels and attached to the original plan.

ecology and environment, Inc.

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: Celotex TDD/Pan/Project Number: 05-9709-007

7P0701511X

Date of original SSP: 9/26/97
Date of amendment: 1/13/98
Date of proposed new work: 1/13/98

Added activities and hazard evaluations: Site Reconnaissance + Measuring of asphalt piles' volume

Added monitoring activities: Cold Stress Monitoring

Level of Protection ___ A ___ B ___ C X ___ D

Reason for up/downgrading: —

PPE: —

Decons: —

TEAM MEMBERS	RESPONSIBILITY
John Nordine	SSO
Brendan McGennan	TEAM LEADER

EQUIPMENT	QUANTITY	EQUIPMENT	QUANTITY
Measuring Tape	1		

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: Brendan B. McGennan. Date: 1/13/98
Reviewed by: [signature] Date: 1/13/98

INSTRUCTIONS: This form to be approved through normal channels and attached to original plan. Form SSP -A

ecology and environment, Inc.

EXISTING SITE SAFETY PLAN ADDENDUM FORM

Site Name: CELOTEX TDD/Part/Project Number: 505-9709-0017

Date of original SSP: 9-26-97
Date of amendment: 12-10-97
Date of proposed new work: 12-11-97

Added activities and hazard evaluations: 1-2 ADDITIONAL SAMPLES OF PAPER PULP / TAR WILL BE COLLECTED.

Added monitoring activities:

Level of Protection ____ A ____ B X C ____ D

Reason for up/downgrading:

PPE: APR, TYVEK SUIT, BOOTIES, LATEX GLOVES

Decons:

TEAM MEMBERS	RESPONSIBILITY
JOHN NORDINE	PROJECT / TASK MANAGER

EQUIPMENT	QUANTITY	EQUIPMENT	QUANTITY
PID	1		
SHOVELS, TROWEL	1		
MIXING BOWL	1		

THE TERMS OF THE ORIGINAL SSP SHALL BE IN EFFECT EXCEPT AS NOTED ON THIS FORM.

Prepared by: DAVID HENDREN. Date: 12-10-97
Reviewed by: William Zadra Date: 12/10/97

INSTRUCTIONS: This form

Revision: 0
July 1994

ecology and environment, inc.

SITE-SPECIFIC
HEALTH AND SAFETY PLAN

Project: Celotex

Project No.: KJ5102

TDD/PAN No.: S05-9709-009 / 7P0701SIXX

Project Location: Wilmington IL

Proposed Date of Field Activities: 9-26-97

Project Director: Tom Kouris, START Project Manager

Project Manager: Brendan McLennan

Prepared by: Brendan McLennan Date Prepared: 9/22/97

Approved by: [signature] Date Approved: 9/22/97

1. INTRODUCTION

1.1 POLICY

It is E & E's policy to ensure the health and safety of its employees, the public, and the environment during the performance of work it conducts. This site-specific health and safety plan (SHASP) establishes the procedures and requirements to ensure the health and safety of E & E employees for the above-named project. E & E's overall safety and health program is described in *Corporate Health and Safety Program for Toxic and Hazardous Substances* (CHSP). After reading this plan, applicable E & E employees shall read and sign E & E's Site-Specific Health and Safety Plan Acceptance form.

This SHASP has been developed for the sole use of E & E employees and is not intended for use by firms not participating in E & E's training and health and safety programs. Subcontractors are responsible for developing and providing their own safety plans.

This SHASP has been prepared to meet the following applicable regulatory requirements and guidance:

Applicable Regulation/Guidance
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER)
Other:

1.2 SCOPE OF WORK

Description of Work: Sample on-site drums, Soil Sampling, water (creek) Samples, Sediment (creek) samples.

Equipment/Supplies: Attachment 1 contains a checklist of equipment and supplies that will be needed for this work.

The following is a description of each numbered task:

Task Number	Task Description
1.	Reconnisance Inventory
2.	Drum Sampling Screening/air Monitor
3	Sediment and water Sampling
4	Soil Sampling
5.	General Area air Monitoring
6.	Photography and Site Mapping

1.3 SITE DESCRIPTION

Site Map: A site map or sketch is attached at the end of this plan.

Site History/Description (see project work plan for detailed description): About 36 drums are found abandoned at the site. Along with a 40-acre landfill/Dump§ (company use only) there is a 1000 yd^3 asphalt mass. Site is Fenced in w/ Several on Site buildings

Is the site currently in operation? ☐ Yes ☒ No

Locations of Contaminants/Wastes: In Drums, at Dump, asphalt mass, creek

Types and Characteristics of Contaminants/Wastes:

☒ Liquid	☒ Solid	☐ Sludge	☐ Gas/Vapor
☒ Flammable/Ignitable	☒ Volatile	☐ Corrosive	☐ Acutely Toxic
☐ Explosive	☐ Reactive	☐ Carcinogenic	☐ Radioactive
☐ Medical/Pathogenic	Other:		

2. ORGANIZATION AND RESPONSIBILITIES

E & E team personnel shall have on-site responsibilities as described in E & E's standard operating procedure (SOP) for Site Inspection. The project team, including qualified alternates, is identified below.

Name	Site Role/Responsibility
Brendan Mchennan	Project/Task Manager
~~Damon Sivars~~ Nabil Fayoumi	Site Safety Officer
KEITH HESNIAK	U.S EPA/OSC
Ingrid Kay	U.S. EPA/EPS
Joe KAWECKI	U.S. EPA
Sam Borrego	U.S. EPA
Fred Barlow	USEPA
Steve Fatyan	USEPA

3. TRAINING

Patrick Barron — Artist who works on Site

Prior to work, E & E team personnel shall have received training as indicated below. As applicable, personnel shall have read the project work plan, sampling and analysis plan, and/or quality assurance project plan prior to project work.

Training	Required
40-Hour OSHA HAZWOPER Initial Training and Annual Refresher (29 CFR 1910.120)	X
Annual First Aid/CPR	X
Hazard Communication (29 CFR 1910.1200)	X
40-Hour Radiation Protection Procedures and Investigative Methods	
8-Hour General Radiation Health and Safety	
Radiation Refresher	
DOT and Biannual Refresher	
Other:	

4. MEDICAL SURVEILLANCE

4.1 MEDICAL SURVEILLANCE PROGRAM

E & E field personnel shall actively participate in E & E's medical surveillance program as described in the CHSP and shall have received, within the past year, an appropriate physical examination and health rating.

E & E's health and safety record (HSR) form will be maintained on site by each E & E employee for the duration of his or her work. E & E employees should inform the site safety officer (SSO) of any allergies, medical conditions, or similar situations that are relevant to the safe conduct of the work to which this SHASP applies.

4.2 RADIATION EXPOSURE

4.2.1 External Dosimetry

Thermoluminescent Dosimeter (TLD) Badges: TLD badges are required to be worn by all E & E field personnel on all E & E sites.

Pocket Dosimeters: N/A

Other: N/A

4.2.2 Internal Dosimetry

☐ Whole body count ☐ Bioassay ☐ Other

Requirements: N/A

4.2.3 Radiation Dose

Dose Limits: E & E's radiation dose limits are stated in the CHSP. Implementation of these dose limits may be designated on a site-specific basis.

Site-Specific Dose Limits:

ALARA Policy: Radiation doses to E & E personnel shall be maintained as low as reasonably achievable (ALARA), taking into account the work objective, state of technology available, economics of improvements in dose reduction with respect to overall health and safety, and other societal and socioeconomic considerations.

5. SITE CONTROL

5.1 SITE LAYOUT AND WORK ZONES

Site Work Zones: Refer to the map or site sketch, attached at the end of this plan, for designated work zones.

Site Access Requirements and Special Considerations: Bolt Cutters may be required to access site or contact & Wilmington City Hall for assistance in opening gates to site

Illumination Requirements: Work only during daylight hours

Sanitary Facilities (e.g., toilet, shower, potable water): TBD

On-Site Communications: Verbal

Other Site-Control Requirements:

5.2 SAFE WORK PRACTICES

Daily Safety Meeting: A daily safety meeting will be conducted for all E & E personnel and documented on the Daily Safety Meeting Record form or in the field logbook. The information and data obtained from applicable site characterization

and analysis will be addressed in the safety meetings and also used to update this SHASP, as necessary.

Work Limitations: Work shall be limited to a maximum of 12 hours per day. If 12 consecutive days are worked, at least one day off shall be provided before work is resumed. Work will be conducted in daylight hours unless prior approval is obtained and the illumination requirements in 29 CFR 1910.120(m) are satisfied.

Weather Limitations: Work shall not be conducted during electrical storms. Work conducted in other inclement weather (e.g., rain, snow) will be approved by project management and the regional safety coordinator or designee.

Other Work Limitations:

Buddy System: Field work will be conducted in pairs of team members according to the buddy system.

Line of Sight: Each field team member shall remain in the line of sight and within verbal communication of at least one other team member.

Eating, Drinking, and Smoking: Eating, drinking, smoking, and the use of tobacco products shall be prohibited in the exclusion and contamination reduction areas, at a minimum, and shall only be permitted in designated areas.

Contamination Avoidance: Field personnel shall avoid unnecessary contamination of personnel, equipment, and materials to the extent practicable.

Sample Handling: Protective gloves of a type designated in Section 7 will be worn when containerized samples are handled for labeling, packaging, transportation, and other purposes.

Vermiculite Handling: Respiratory protection (i.e., high-efficiency particulate air filtration) is recommended when vermiculite is used to package samples into shipping containers (some vermiculite contains low concentrations of asbestos).

Other Safe Work Practices: MASK Maintain Buddy System

6. HAZARD EVALUATION AND CONTROL

6.1 PHYSICAL HAZARD EVALUATION AND CONTROL

Potential physical hazards and their applicable control measures are described in the following table for each task.

Hazard	Task Number	Hazard Control Measures
Biological (flora, fauna, etc.)	1,2,3,4,5,6	• Potential hazard: Overgrowth of grasses prevent view of hazards • Establish site-specific procedures for working around identified hazards. • Other: _____
Cold Stress		• Provide warm break area and adequate breaks. • Provide warm noncaffeinated beverages. • Promote cold stress awareness. • See *Cold Stress Prevention and Treatment* (attached at the end of this plan if cold stress is a potential hazard).
Compressed Gas Cylinders		• Use caution when moving or storing cylinders. • A cylinder is a projectile hazard if it is damaged or its neck is broken. • Store cylinders upright and secure them by chains or other means. • Other: _____
Confined Space		• Ensure compliance with 29 CFR 1910.146. • See SOP for Confined Space Entry. Additional documentation is required. • Other: _____
Drilling		• See SOP for Health and Safety on Drilling Rig Operations. Additional documentation may be required. • Other: _____ • Other: _____
Drums and Containers	1,2,3,4,5,6	• Ensure compliance with 29 CFR 1910.120(j). • Consider unlabeled drums or containers to contain hazardous substances and handle accordingly until the contents are identified. • Inspect drums or containers and assure integrity prior to handling. • Move drums or containers only as necessary; use caution and warn nearby personnel of potential hazards. • Open, sample, and/or move drums or containers in accordance with established procedures; use approved drum/container-handling equipment. • Other: _____
Electrical		• Ensure compliance with 29 CFR 1910 Subparts J and S. • Locate and mark energized lines. • De-energize lines as necessary. • Ground all electrical circuits. • Guard or isolate temporary wiring to prevent accidental contact. • Evaluate potential areas of high moisture or standing water and define special electrical needs. • Other: _____
Excavation and Trenching		• Ensure that excavations comply with and personnel are informed of the requirements of 29 CFR 1926 Subpart P. • Ensure that any required sloping or shoring systems are approved as per 29 CFR 1926 Subpart P. • Identify special personal protective equipment (PPE) (see Section 7) and monitoring (see Section 8) needs if personnel are required to enter approved excavated areas or trenches.

Hazard	Task Number	Hazard Control Measures
Excavation and Trenching (Cont.)		• Maintain line of sight between equipment operators and personnel in excavations/trenches. Such personnel are prohibited from working in close proximity to operating machinery. • Suspend or shut down operations at signs of cave in, excessive water, defective shoring, changing weather, or unacceptable monitoring results. • Other: _____ • Other: _____
Fire and Explosion		• Inform personnel of the location(s) of potential fire/explosion hazards. • Establish site-specific procedures for working around flammables. • Ensure that appropriate fire suppression equipment and systems are available and in good working order. • Define requirements for intrinsically safe equipment. • Identify special monitoring needs (see Section 8). • Remove ignition sources from flammable atmospheres. • Coordinate with local fire-fighting groups regarding potential fire/explosion situations. • Establish contingency plans and review daily with team members. • Other: _____
Heat Stress	1, 2, 3, 4, 5, 6	• Provide cool break area and adequate breaks. • Provide cool noncaffeinated beverages. • Promote heat stress awareness.
Heat Stress (Cont.)	1, 2, 3, 4, 5, 6	• Use active cooling devices (e.g., cooling vests) where specified. • See *Heat Stress Prevention and Treatment* (attached at the end of this plan if heat stress is a potential hazard).
Heavy Equipment Operation		• Define equipment routes, traffic patterns, and site-specific safety measures. • Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. • Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. • Identify special PPE (Section 7) and monitoring (Section 8) needs.
		• Ensure that field personnel do not work in close proximity to operating equipment. • Ensure that lifting capacities, load limits, etc., are not exceeded. • Other: _____
Heights (Scaffolding, Ladders, etc.)		• Ensure compliance with applicable subparts of 29 CFR 1910. • Identify special PPE needs (e.g., lanyards, safety nets, etc.) • Other: _____
Noise		• Establish noise level standards for on-site equipment/operations. • Inform personnel of hearing protection requirements (Section 7). • Define site-specific requirements for noise monitoring (Section 8). • Other: _____
Overhead Obstructions	1, 2, 3, 4, 5, 6	• Wear hard hat. • Other: _____

Hazard	Task Number	Hazard Control Measures
Power Tools		• Ensure compliance with 29 CFR 1910 Subpart P. • Other: _____
Sunburn	1, 2, 3, 4, 5, 6	• Apply sunscreen. • Wear hats/caps and long sleeves. • Other: _____
Utility Lines		• Identify/locate existing utilities prior to work. • Ensure that overhead, underground, and nearby utility lines are at least 25 feet away from project activities. • Contact utilities to confirm locations, as necessary. • Other: _____
Weather Extremes	1, 2, 3, 4, 5, 6	• Potential hazards: _____ • Establish site-specific contingencies for severe weather situations. • Provide for frequent weather broadcasts. • Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.). • Identify special PPE (Section 7) needs. • Discontinue work during severe weather. • Other: _____
Other:	1, 2, 3, 4, 5, 6	• Wear Steel Toe Boots • Watch footing
Other:	1, 2, 3, 4, 5, 6	• open uncovered Man-holes •

6.2 CHEMICAL HAZARD EVALUATION AND CONTROL

6.2.1 Chemical Hazard Evaluation

Potential chemical hazards are described by task number in Table 6-1. Hazard Evaluation Sheets for major known contaminants are attached at the end of this plan.

6.2.2 Chemical Hazard Control

An appropriate combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below published exposure levels (see Section 6.2.1).

Applicable Engineering/Administrative Control Measures: NONE

PPE: See Section 7.

6.3 RADIOLOGICAL HAZARD EVALUATION AND CONTROL

6.3.1 Radiological Hazard Evaluation

Potential radiological hazards are described below by task number. Hazard Evaluation Sheets for major known contaminants are attached at the end of this plan.

Table 6-1

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1-6	Benzene*	1 ppm	0.1	10 ppm	Y	Inh, Ing, Eye, Skin	DIZZ, GD, HA, NAU, Drowsiness, Irr. E/S/URT/GI, Pulmonary edema, Convulsions	4.68 ppm Aromatic	150% 100%	9.25
1-6	Chromium (metal)	1.0 mg/m3	0.5 mg/m3	0.5 mg/m3	N	Inh, Ing, Eye, Skin	No acute symptoms reported	--- Odorless	--- ---	---
1-6	Lead	0.05 mg/m3	<0.1 mg/m3	0.15 mg/m3	N	Inh, Ing, Eye, Skin	Decreased appetite, muscle pain	--- Odorless	--- ---	---
1-6	Motor oil	---	---	---	N	Inh, Ing, Eye, Skin		--- Oily	--- ---	---
1-6	Toluene*	100 ppm	100 ppm	50 ppm	N	Inh, Ing, Eye, Skin	Irritation of eyes/URT/skin; fatigue, weakness, confusion, HA, DIZZ, LOC	1.6 ppm Aromatic	--- 100%	8.82
1-6	Xylene, all isomers	100 ppm	100 ppm	100 ppm	N	Inh, Ing, Eye, Skin	Irritation of eyes/nose/throat, drowsiness, dizziness	20 ppm Aromatic, sweet	111% 112%	8.56

KEY:

* = Chemical is a known or suspected carcinogen.
--- = Information not available

PEL	= Permissible Exposure Limit	E/N/I	= Eyes/Nose/Throat	ING	= Ingestion	PWP	= Poor Warning Properties
REL	= Recommended Exposure Limit	FA	= Fatigue	IRR	= Irritation	URT	= Upper Respiratory Tract
TLV	= Threshold Limit Value	F/CC	= fibers per cubic centimeter	LFC	= Lowest Feasible Concentration	V	= Vomiting
C	= Ceiling Limit	GD	= Giddiness	LOC	= Loss of Consciousness	WK	= Weakness
CGH	= Cough	GI	= Gastrointestinal Tract	MG/M3	= Milligrams per cubic meter	SK	= Skin Notation
CNS	= Central Nervous System Effects	HA	= Headaches	NAU	= Nausea	SP	= Slow Pulse
DIZZ	= Dizziness	INH	= Inhalation	PPM	= Parts per million	STEL	= Short Term Exposure Limit

Task Number	Radionuclide	DAC (μCi/ml)	Route(s) of Exposure	Major Radiation(s)	Energy(s) (MeV)	Half-Life
	N/A					

6.3.2 Radiological Hazard Control

Engineering/administrative controls and work practices shall be instituted to reduce and maintain employee exposures to a level at or below the permissible exposure/dose limits (see sections 4.2.3 and 6.3.1). Whenever engineering/administrative controls and work practices are not feasible or effective, any reasonable combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below permissible exposure/dose limits.

Applicable Engineering/Administrative Control Measures: _____

PPE: See Section 7.

7. LEVEL OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

7.1 LEVEL OF PROTECTION

The following levels of protection (LOPs) have been selected for each work task based on an evaluation of the potential or known hazards, the routes of potential hazard, and the performance specifications of the PPE. On-site monitoring results and other information obtained from on-site activities will be used to modify these LOPs and the PPE, as necessary, to ensure sufficient personnel protection. The authorized LOP and PPE shall only be changed with the approval of the regional safety coordinator or designee. Level A is not included below because Level A activities, which are performed infrequently, will require special planning and addenda to this SHASP.

Task Number	B	C	D	Modifications Allowed
1	X			D
2	X			
3		X		
4		X		
5	X			
6	X			D

Note: Use "X" for initial levels of protection. Use "(X)" to indicate levels of protection that may be used as site conditions warrant.

7.2 PERSONAL PROTECTIVE EQUIPMENT

The PPE selected for each task is indicated below. E & E's PPE program complies with 29 CFR 1910.120 and 29 CFR 1910 Subpart I and is described in detail in the CHSP. Refer to 29 CFR 1910 for the minimum PPE required for each LOP.

PPE	Task Number/LOP					
	1	2	3	4	5	6
Full-face APR	X	X	X	X	X	X
PAPR						
Cartridges:						
H	X	X	X	X	X	X
GMC-H						
GMA-H						
Other:						
Positive-pressure, full-face SCBA	X	X	X	X	X	X
Spare air tanks (Grade D air)	X	X	X	X	X	X
Positive-pressure, full-face, supplied-air system						
Cascade system (Grade D air)						
Manifold system						
5-Minute escape mask						
Safety glasses	X	X	X	X	X	X
Monogoggles						
Coveralls/clothing						
Protective clothing:						
Tyvek	X	X	X	X	X	X
Saranex	X	X	X	X	X	X
Other:						
Splash apron						
Inner gloves:						
Cotton						
Nitrile						
Latex	X	X	X	X	X	X
Other:						

PPE	Task Number/LOP					
	1	2	3	4	5	6
Outer gloves:						
Viton						
Rubber						
Neoprene						
Nitrile	X	X	X	X	X	X
Other:						
Work gloves	X	X	X	X	X	X
Safety boots (as per ANSI Z41)	X	X	X	X	X	X
Neoprene safety boots (as per ANSI Z41)						
Boot covers (type: Latex)	X	X	X	X	X	X
Hearing protection (type:)						
Hard hat	X	X	X	X	X	X
Face shield						
Other:						
Other:						

8. HEALTH AND SAFETY MONITORING

Health and safety monitoring will be conducted to ensure proper selection of engineering/administrative controls, work practices, and/or PPE so that employees are not exposed to hazardous substances at levels that exceed permissible exposure/dose limits or published exposure levels. Health and safety monitoring will be conducted using the instruments, frequency, and action levels described in Table 8-1. Health and safety monitoring instruments shall have been appropriately calibrated and/or performance-checked prior to use.

9. DECONTAMINATION PROCEDURES

All equipment, materials, and personnel will be evaluated for contamination upon leaving the exclusion area. Equipment and materials will be decontaminated and/or disposed and personnel will be decontaminated, as necessary. Decontamination will be performed in the contamination reduction area or any designated area such that the exposure of uncontaminated employees, equipment, and materials will be minimized. Specific procedures are described below.

Equipment/Material Decontamination Procedures (specified by work plan): Sampling Equipment will be decontaminated w/ Alconox, water rinse. PPE will be placed in plastic bags and left on site. Personnel will wash hands w/ Soap and water prior to leaving site

Ventilation: All decontamination procedures will be conducted in a well-ventilated area.

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels[a]	
☒ PID (e.g., HNu IS-101) ☐ FID (e.g., OVA 128-GC)	1, 2, 3, 4, 5, 6	Volatile organics	Drum Locations Breathing area	Continuous	**Unknown Vapors** Background to 1 ppm: Level D 1 to 5 ppm above background: Level C 5 to 500 ppm above background: Level B >500 ppm above background: Level A	**Contaminant-Specific**
Oxygen Meter/Explosimeter	1, 2, 3, 4, 5, 6	Volatile organics	Drum Locations Breathing area	Continuous	**Oxygen** <19.5% or >25.0%: Evacuate area; eliminate ignition sources; reassess conditions. 19.5 to 25.0%: Continue work in accordance with action levels for other instruments.	**Explosivity** ≤10% LEL: Continue work in accordance with action levels for other instruments; monitor continuously for combustible atmospheres. >10% LEL: Evacuate area; eliminate ignition sources; reassess conditions.
Radiation Alert Monitor (Rad-mini or RAM-4)	1-6				<0.1 mR/hr: Continue work in accordance with action levels for other instruments. ≥0.1 mR/hr: Evacuate area; reassess work plan and contact radiation safety specialist.	
Mini-Ram Particulate Monitor					**General/Unknown** Evaluate health and safety measures when dust levels exceed 2.5 milligrams per cubic meter.	**Contaminant-Specific**
HCN/H_2S (Monitox)					≥4 ppm: Leave area and consult with SSO.	
Draeger Colorimetric Tubes					**Tube** **Action Level** **Action**	

Table 8-1

HEALTH AND SAFETY MONITORING

Instrument	Task Number	Contaminant(s)	Monitoring Location	Monitoring Frequency	Action Levels[a]
Air Monitor/Sampler Type:_____ Sampling medium: _____					**Action Level** **Action**
Personal Sampling Pump Type:_____ Sampling medium: _____					**Action Level** **Action**
Micro R Meter					<2 mR/hr: Continue work in accordance with action levels for other instruments. 2 to 5 mR/hr: In conjunction with a radiation safety specialist, continue work and perform stay-time calculations to ensure compliance with dose limits and ALARA policy. >5 mR/hr: Evacuate area to reassess work plan and evaluate options to maintain personnel exposures ALARA and within dose limits.
Ion Chamber					See micro R meter action levels above.
Radiation Survey Ratemeter/Scaler with External Detector(s)					**Detector** **Action Level** **Action**
Noise Dosimeter (Sound Level Meter)					≤85 decibels as measured using the A-weighed network (dBa): Use hearing protection if exposure will be sustained throughout work shift. >85 dBA: Use hearing protection. >120 dBA: Leave area and consult with safety personnel.
Other:					
Other:					

[a] Unless stated otherwise, airborne contaminant concentrations are measured as a time-weighted average in the worker's breathing zone. Acceptable concentrations for known airborne contaminants will be determined based on OSHA/NIOSH/ACGIH and/or NRC exposure limits.

Personnel Decontamination Procedures: Rinse/Wipe gross contamination on PPE. Bag PPE and dispose on-site w/ OSC approval

PPE Requirements for Personnel Performing Decontamination: Level C

Personnel Decontamination in General: Following appropriate decontamination procedures, all field personnel will wash their hands and face with soap and potable water. Personnel should shower at the end of each work shift.

Disposition of Disposable PPE: Disposable PPE must be rendered unusable and disposed as indicated in the work plan.

Disposition of Decontamination Wastes (e.g., dry wastes, decontamination fluids, etc.):

10. EMERGENCY RESPONSE

This section contains additional information pertaining to on-site emergency response and does not duplicate pertinent emergency response information contained in earlier sections of this plan (e.g., site layout, monitoring equipment, etc.). Emergency response procedures will be rehearsed regularly, as applicable, during project activities.

10.1 EMERGENCY RESPONSIBILITIES

All Personnel: All personnel shall be alert to the possibility of an on-site emergency; report potential or actual emergency situations to the team leader and SSO; and notify appropriate emergency resources, as necessary.

Team Leader: The team leader will determine the emergency actions to be performed by E & E personnel and will direct these actions. The team leader also will ensure that applicable incidents are reported to appropriate E & E and client project personnel and government agencies.

SSO: The SSO will recommend health/safety and protective measures appropriate to the emergency.

Other:

10.2 LOCAL AND SITE RESOURCES (including phone numbers)

Ambulance: 911

Hospital: St. Joseph's Hospital 815-725-7133 333 N. Madison

Directions to Hospital (map attached at the end of this plan): Cleveland St East to Main St. Main St South to Route 53. Route 53 North to Interstate 80. I-80 west to Larkin St North Exit (130B). Larkin St North 4 stoplights to Glenwood East on Glenwood 2 blocks

Poison Control: 1-800-942-5969

Police Department: 911

Fire Department: 911

Client Contact: Keith Lesniak 312-886-7189

Site Contact: _____

On-Site Telephone Number: _____

Cellular Telephone Number: TBD

Radios Available: _____

Other: _____

10.3 E & E EMERGENCY CONTACTS

E & E Emergency Response Center (24 Hours):	716/684-8940
Corporate Health and Safety Director, Dr. Paul Jonmaire:	716/684-8060 (office) 716/655-1260 (home)
Corporate Safety Officer, Tom Siener:	716/684-8060 (office) 716/662-4740 (home)
Regional Safety Coordinator, Dean Tiebout:	578-9243 ~~312/663-9415~~ (office) 312/338-4423 (home)
Regional Office Manager, Jerome Oskvarek:	578-9243 ~~312/663-9415~~ (office) 312/775-7040 (home)

10.4 TOXICOLOGICAL EMERGENCIES

In the event of a toxicological emergency, personnel should call the E & E Emergency Response Center for assistance.

10.5 OTHER EMERGENCY RESPONSE PROCEDURES

On-Site Evacuation Signal/Alarm (must be audible and perceptible above ambient noise and light levels): 3 Horn Blasts From Vehicle

On-Site Assembly Area: TBD

Emergency Egress Route to Get Off Site: TBD

Off-Site Assembly Area: TBD

Preferred Means of Reporting Emergencies: 911

Site Security and Control: In an emergency situation, personnel will attempt to secure the affected area and control site access.

Emergency Decontamination Procedures: Exit hot zone, remove contaminated PPE + garments as necessary. Use chemical Hazard table and/or rinse exposed area with water.

PPE: Personnel will don appropriate PPE when responding to an emergency situation. The SSO and Section 7 of this plan will provide guidance regarding appropriate PPE.

Emergency Equipment: Appropriate emergency equipment is listed in Attachment 1. Adequate supplies of this equipment shall be maintained in the support area or other approved work location.

Incident Reporting Procedures: Report to appropriate authorities ASAP

ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST

INSTRUMENTATION	No.	EMERGENCY EQUIPMENT	No.
OVA		First aid kit	1
Thermal desorber		Stretcher	
O_2/explosimeter w/cal. kit	✓	Portable eye wash	
Photovac tip		Blood pressure monitor	
HNu (probe: 10.5 eV)	✓	Fire blanket	
Magnetometer		Fire extinguisher	
Pipe locator		Thermometer (medical)	
Weather station		Spill kit	
Draeger tube kit (tubes:)			
Brunton compass			
Real-time cyanide monitor			
Real-time H_2S monitor			
Heat stress monitor			
Noise equipment		**DECONTAMINATION EQUIPMENT**	
Personal sampling pumps and supplies		Wash tubs	✓
MiniRam dust monitor		Buckets	✓
Mercury monitor		Scrub brushes	
Spare batteries (type:)		Pressurized sprayer	✓
		Spray bottle	✓
		Detergent (type: Alconox)	✓
RADIATION EQUIPMENT/SUPPLIES		Solvent (type: water)	✓
Documentation forms		Plastic sheeting	
Portable ratemeter		Tarps and poles	
Scaler/ratemeter		Trash bags	✓
1" NaI gamma probe		Trash cans	
2" NaI gamma probe		Masking tape	
ZnS alpha probe		Duct tape	✓
GM pancake probe		Paper towels	✓
Tungsten-shielded GM probe		Face mask	
Micro R meter	✓	Face mask sanitizer	
Ion chamber		Step ladders	
Alert monitor		Distilled water	3gal
Pocket dosimeter		Deionized water	
Dosimeter charger			
Radiation warning tape			
Radiation decon supplies			
Spare batteries (type:)			
SAMPLING EQUIPMENT		**MISCELLANEOUS (Cont.)**	
8-oz. bottles	✓	Gatorade or equivalent	
Half-gallon bottles	✓	Tables	

ATTACHMENT 1
EQUIPMENT/SUPPLIES CHECKLIST

VOA bottles		Chairs	
String		Weather radio	
Hand bailers		Two-way radios	
Thieving rods with bulbs	✓	Binoculars	
Spoons	✓	Megaphone	
Knives		Cooling vest	
Filter paper			
Bottle labels			
		SHIPPING EQUIPMENT	
		Coolers	✓
MISCELLANEOUS		Paint cans with lids, 7 clips each	
Pump		Vermiculite	
Surveyor's tape		Shipping labels	
100' Fiberglass tape		DOT labels:	
300' Nylon rope		"Up"	✓
Nylon string		"Danger"	✓
Surveying flags		"Inside Container Complies ..."	✓
Camera	✓	Hazard Group	✓
Film	✓	Strapping tape	✓
Bung wrench	✓	Baggies	✓
Soil auger		Custody seals	✓
Pick	✓	Chain-of-custody forms	✓
Shovel	✓	Federal Express forms	✓
Catalytic heater		Clear packing tape	✓
Propane gas		Permanent markers	✓
Banner tape			
Surveying meter stick			
Chaining pins and ring			
Logbooks (____ large, ✓ small)	✓		
Required MSDSs	✓		
Intrinsically safe flashlight	✓		
Potable water			

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DAILY SAFETY MEETING RECORD

GENERAL INFORMATION

Project:

Project No:	TDD/PAN No.:

Project Location:

Date: Time: Weather:

Specific Location:

Planned Activities:

SAFETY TOPICS PRESENTED

Chemical Hazards Update:

Physical Hazards Update:

Radiation Hazards Update:

Review of Previous Monitoring Results:

Protective Clothing/Equipment Modifications:

Special Equipment/Procedures:

Drilling Safety Issues (including testing the operation of drill rig emergency stop switches):

Emergency Procedures:

Additional Topics/Observations:

Team Members' Comments/Suggestions:

THE SIGMA-ALDRICH LIBRARY OF CHEMICAL SAFETY DATA

Explanation of Codes

PROCEDURES FOR SPILLS OR LEAKS

1 Absorb on sand or vermiculite and place in closed container for disposal.
2 Cover with dry lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors.
3 Shut off all sources of ignition.
4 Evacuate area.
5 Cover with an activated carbon adsorbent, take up and place in closed container. Transport outdoors.
6 Ventilate area and wash spill site after material pickup is complete.
7 Sweep up, place in a bag and hold for waste disposal.
8 Avoid raising dust.
9 Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
10 Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.
11 Cover with dry lime or soda ash, pick up, keep in a closed container and hold for waste disposal.
12 Carefully sweep up and remove.
13 Flush spill area with copious amounts of water.
14 Mix with solid sodium bicarbonate.
15 Place in appropriate container.
16 Wear protective equipment.
17 Wash spill site with soap solution.
18 Please contact the Technical Services Department. Be sure to mention the name and catalog number of the material.

FIRE-EXTINGUISHING MEDIA

1 Carbon dioxide.
2 Dry chemical powder.
3 Water spray.
4 Alcohol or polymer foam.
5 Class D fire-extinguishing material only.
6 Water may be effective for cooling, but may not effect extinguishment.
7 Carbon dioxide, dry chemical powder, alcohol or polymer foam.
8 Foam and water spray are effective but may cause frothing.
9 Do not use dry chemical powder extinguisher on this material.
10 Do not use carbon dioxide extinguisher on this material.
11 Noncombustible.
12 Do not use water.
13 Use extinguishing media appropriate to surrounding fire condition

Sigma-Aldrich Corporation, P.O. Box 355, Milwaukee, Wisconsin 53201 USA
(Sigma: 314-771-5765; Aldrich: 414-273-3850)

COLD STRESS PREVENTION AND TREATMENT

Cold temperatures are potentially hazardous, especially when work is conducted without appropriate precautions. The following sections describe cold stress prevention and the recognition and treatment of cold stress emergencies.

Preventing Emergencies Due to Cold Stress

When working in situations where the ambient temperature is low, especially if low temperatures are accompanied by windy conditions, personnel should use the following cold-stress prevention measures:

- Wear warm, dry, loose-fitting clothing that is preferably worn in layers. Outer clothing should be waterproof and windproof. Inner clothing should be capable of retaining warmth even when it is wet (e.g., wool or polypropylene) or have wicking capabilities (to draw moisture and perspiration away from the skin).
- Wear lined and insulated footwear and warm gloves or mittens.
- Alternately remove and don clothing layers as necessary to regulate body temperature and reduce excess perspiration.
- Drink warm fluids as often as desired.
- Take frequent breaks to provide for cold stress monitoring.

Cold Stress Emergencies

Hypothermia. Exposure to cold can cause the body's internal temperature to drop to a dangerously low level. Hypothermia occurs when a person's body loses heat faster than it can be produced. The body's normal deep-body temperature is approximately 98.6 degrees Fahrenheit. If body temperature drops to 95 degrees Fahrenheit, uncontrollable shivering may occur. If cooling continues, these other symptoms may occur:

- Vague, slow, slurred speech;
- Forgetfulness, memory lapses;
- Inability to use hands;
- Frequent stumbling;
- Drowsiness;
- Exhaustion, collapse;
- Unconsciousness; and
- Death.

Hypothermia impairs the judgment of the victim. Hypothermia is possible even in temperatures above freezing and can be prevented by remaining warm and dry and avoiding overexposure to the cold.

If a person shows symptoms of hypothermia, perform the following:

- Remove the victim from exposure to wet and cold weather.
- Remove wet clothing.
- If the victim is only mildly affected, provide warm drinks and dry clothing.
- If the victim is more seriously affected (clumsy, confused, unable to shiver), begin safe-warming procedures such as hugging, wrapping in dry blankets, and the use of warm objects such as hot water bottles or heat packs, and arrange for evacuation. Do not give the victim warm drinks until he or she exhibits a clear level of consciousness and appears to be warming up.

Frostbite. Frostbite occurs when body tissue freezes. Severe frostbite can lead to reduced circulation and the possible need for amputation. To prevent frostbite, maintain good circulation and keep extremities warm and dry. In extreme cold, it is important to prevent heat loss from as many areas of the body as possible. Exposed limbs and the head are major areas of heat loss.

Tall, thin people; those in poor physical condition; people with chronic diseases; heavy smokers; children; the elderly; and those who have been drinking alcohol are more susceptible to frostbite than other people due to poor circulation, poor production of body heat, or both.

There may be no pain or numbness experienced with gradual freezing of body tissues. While in the cold, it is important to test extremities for sensation and ensure that clothing is loose-fitting and warm. Exposed parts of the body should be inspected routinely. Just before freezing, skin becomes bright red. As freezing continues, small white patches will appear and the skin will become less elastic, often remaining pitted after it is touched or squeezed.

Serious freezing is most common in the feet because people are less aware of them, circulation and sensation are poorer, and warm footwear is difficult to obtain. Hands are usually the next to freeze. Exposed parts of the head will freeze less rapidly because they are conditioned to exposure and have a better blood supply.

In very cold weather, avoid touching cold metal with bare body parts. In the event that this happens, release the skin gently using heat, warm water, or urine. Avoid handling gasoline, kerosene, or similar liquids which, when handled in cold weather, can cause immediate frostbite.

If a person shows symptoms of frostbite, consult a medical professional, if possible, and perform the following:

- Initiate rewarming only if subsequent refreezing is not a possibility (thawing and refreezing should always be avoided because this is very injurious to tissue). Rewarm body parts in water that is approximately 100 to 105

HEAT STRESS PREVENTION AND TREATMENT

Elevated temperatures are potentially hazardous, especially when work is conducted without appropriate precautions. The following sections describe heat stress prevention and the recognition and treatment of heat emergencies.

Effects of Heat

A predictable amount of heat is generated as a result of normal oxidation processes within the body. If heat is liberated rapidly, the body cools to a point at which the production of heat is accelerated, and the excess heat brings the body temperature back to normal.

Interference with the elimination of heat leads to its accumulation and to the elevation of body temperature. This condition produces a vicious cycle in which certain body processes accelerate and generate additional heat. Afterward, the body must eliminate not only the heat that is normally generated but also the additional quantities of heat.

Most body heat is brought to the surface by the bloodstream and escapes to cooler surroundings by conduction and radiation. If moving air or a breeze strikes the body, additional heat is lost by convection. When the temperature of the surrounding air becomes equal to or rises above the body temperature, all the heat must be lost by vaporization of the moisture or sweat from skin surfaces. As the air becomes more humid (contains more moisture), vaporization from the skin decreases. Weather conditions including high temperatures (90 to 100 degrees F), high humidity, and little or no breeze cause the retention of body heat. Such conditions or a succession of such days (a heat wave) increase the chances of a medical emergency due to heat.

Preventing Emergencies Due to Heat

When working in situations where the ambient temperatures and humidity are high, and especially in situations where protection levels A, B, or C are required, the site safety officer should:

- Ensure that all employees drink plenty of fluids (Gatorade or its equivalent);
- Ensure that frequent breaks are scheduled so overheating does not occur; and
- Revise work schedules, when necessary, to take advantage of the cooler parts of the day (i.e., 5:00 a.m. to 11:00 a.m. and 6:00 p.m. to nightfall).

When protective clothing is required, the suggested guidelines correlating ambient temperature and maximum wearing time per excursion are:

Ambient Temperature	Maximum Wearing Time per Excursion
Above 90 degrees F	15 minutes
85 to 90 degrees F	30 minutes
80 to 85 degrees F	60 minutes
70 to 80 degrees F	90 minutes

degrees Fahrenheit. Do not try to thaw the body parts using cold water, snow, or intense heat from fires or stoves. The whole body may be immersed in warm water if necessary.

- If a large portion of an extremity is frozen when rewarming is initiated, the deep body temperature may drop as cooled blood begins to circulate throughout the body. Provide warm liquids to alleviate this situation.

- Move the afflicted part gently and voluntarily during rewarming.

- Use pain medication if it is available. Rewarming can be acutely painful. After thawing is completed, a deep pain may persist for several days, depending on the severity of the frostbite. Pain may be a good sign as it indicates that nerve function is present.

- A dull purple color, swelling, or blisters indicate serious injury and the need for medical attention. Consult a medical professional.

60 to 70 degrees F	120 minutes
50 to 60 degrees F	180 minutes

One method of measuring the effectiveness of an employee's rest-recovery regime is by monitoring the heart rate. The "Brouha guideline" is one such method and is performed as follows:

- Count the pulse rate for the **last** 30 seconds of the first minute of a 3-minute period, the **last** 30 seconds of the second minute, and the **last** 30 seconds of the third minute; and
- Double each result to yield beats per minute.

If the recovery pulse rate during the last 30 seconds of the first minute is 110 beats/minute or less, and the deceleration between the first, second, and third minutes is **at least** 10 beats/minute, then the work-recovery regime is acceptable. If the employee's rate is above the rate specified, a longer rest period will be required, accompanied by an increased intake of fluids.

Heat Emergencies

Heat Cramps. Heat cramps usually affect people who work in hot environments and perspire a great deal. Loss of salt from the body causes very painful cramps in leg and abdominal muscles. Heat cramps may also result from drinking iced water or other drinks either too quickly or in too large a quantity. The symptoms of heat cramps are:

- Painful muscle cramps in legs and abdomen;
- Faintness; and
- Profuse perspiration.

To provide emergency care for heat cramps, move the patient to a cool place. Give him or her sips of liquids such as Gatorade or its equivalent. Apply manual pressure to the cramped muscle. Move the patient to a hospital if there is any indication of a more serious problem.

Heat Exhaustion. Heat exhaustion also may occur in individuals working in hot environments and may be associated with heat cramps. Heat exhaustion is caused by the pooling of blood in the vessels of the skin. The heat is transported from the interior of the body to the surface by the blood. The skin vessels become dilated and a large amount of blood is pooled in the skin. This condition, plus the blood that is pooled in the lower extremities when in an upright position, may lead to an inadequate return of blood to the heart and eventual physical collapse. The symptoms of heat exhaustion are:

- Weak pulse;
- Rapid and usually shallow breathing;
- Generalized weakness;
- Pale, clammy skin;

- Profuse perspiration:
- Dizziness/faintness; and
- Unconsciousness.

To provide emergency care for heat exhaustion, move the patient to a cool place and remove as much clothing as possible. Have the patient drink cool water, Gatorade, or its equivalent. If possible, fan the patient continually to remove heat by convection, but do not allow chilling or overcooling. Treat the patient for shock and move him or her to a medical facility if there is any indication of a more serious problem.

Heat Stroke. Heat stroke is a profound disturbance of the heat-regulating mechanism and is associated with high fever and collapse. It is a serious threat to life and carries a 20% mortality rate. Sometimes this condition results in convulsions, unconsciousness, and even death. Direct exposure to sun, poor air circulation, poor physical condition, and advanced age (over 40) increase the chance of heat stroke. Alcoholics are extremely susceptible. The symptoms of heat stroke are:

- Sudden onset;
- Dry, hot, and flushed skin;
- Dilated pupils;
- Early loss of consciousness;
- Full and fast pulse;
- Deep breathing at first, followed by shallow or faint breathing;
- Muscle twitching, growing into convulsions; and
- Body temperature reaching 105 to 106 degrees F or higher.

When providing emergency care for heat stroke, remember that it is a life-threatening emergency. Transportation to a medical facility should not be delayed. Move the patient to a cool environment, if possible, and remove as much clothing as possible. Ensure an open airway. Reduce body temperature promptly by dousing the body with water or, preferably, by wrapping the patient in a wet sheet. If cold packs are available, place them under the arms, around the neck, at the ankles, or any place where blood vessels that lie close to the skin can be cooled. Protect the patient from injury during convulsions.

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JOB NO ZT2051 | HAZARD EVALUATION OF CHEMICALS | PREPARATION/UPDATE DATE 5-8-90

CHEMICAL NAME: BENZENE

CAS NUMBER: 71-43-2 DOT NAME/ID NO.: RQ:

SYNONYMS: BENZOL, BENZOLE, CYCLOHEXATRIENE, BENZOLENE, BICARBURET OF HYDROGEN, CARBON OIL, COAL NAPHTHA

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C6H6 MOLECULAR WEIGHT: 78 PHYSICAL STATE: LIQUID SPG/D 0.879 SOLUBILITY (H20): SLIGHTLY

VAPOR PRESS: 75MM FREEZING POINT: 42 F BOILING POINT: 176 F FLASH POINT: 12 F FLAMMABLE LIMITS: 1.3-7.1%

ODOR CHARACTERISTICS: 4.68 PPM

INCOMPATABILIITIES: STRONG OXIDIZERS, CHLORINE, BROMINE

BIOLOGICAL PROPERTIES:

IDLH: TLV-TWA: 10 PPM PEL: 1 PPM ODOR THRESHOLD:

HUMAN (LCLO): TCLO 100/CNS RAT/MOUSE (LC50): TCLO 50/ AQUATIC:

CARCINOGEN: HUMAN-SUS TERATOGEN: MUTIGEN: EXPER

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

10 PPM USE SCBA, USE PROTECTIVE CLOTHING, EXCEL-VITON;GOOD-NEOPRENE, SARANAX; POOR-BUTYL, NATURAL RUBBER FOR GLOVES, AVOID SKIN/EYE CONTACT

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: CAN CAUSE DIZZINESS, EUPHORIA, GIDDINESS, HEADACHE, NAUSEA, STAGGERING GAIT, WEAKNESS, DROWSINESS, RESPIRATORY IRRITATION, PULMONARY EDEMA AND PNEUMONIA, GASTROINTESTINAL IRRITATION, CONVULSIONS, AND PARALYSIS. CAN ALSO CAUSE IRRITATION TO SKIN, EYES

ACUTE SYMPTOMS: SKIN IRRITANT, CNS DEPRESSANT, MOSTLY IHL, INITIAL EXCITATION FOLLOWED BY HEADACHE, DIZZINESS, VOMITING, DELIRIUM, SEVERE EXPOSURE MAY SEE TREMORS, BLURRED VISION, SHALLOW RESP, CONVULSIONS

CHRONIC SYMPTOMS: ANOREXIA, DROWSINESS, ANEMIA, BLEEDING UNDER SKIN, REDUCED BLOOD CLOTTING;LIVER, KIDNEY, BONE MARROW DAMAGE, LEUKEMIA

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: DO NOT INDUCE VOMITING, GIVE WATER OR MILK, GET MEDICAL ATTENTION IMMEDIATELY

DISPOSAL/WASTE TREATMENT:

TOXIC FUMES OF CARBON DIOXIDE, CARBON MONOXIDE

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [X] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [ ] CHRIS [ ] SAX
[X] NIOSH/OSHA POCKET GUIDE
[ ] OTHER: CHRIS (VOL III), SAX, ALDRICH, RTECS

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JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 6-08-93

CHEMICAL NAME: CHROMIUM (METAL)

CAS NUMBER: 7440 47-2 DOT NAME/ID NO.: RQ:
SYNONYMS. CHROMIUN METAL

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: CR MOLECULAR WEIGHT: 52 PHYSICAL STATE: VARIABLE SPG/D 7.2 SOLUBILITY (H20): INSOLUBLE
VAPOR PRESS: VARIABLE FREEZING POINT: 3339 F BOILING POINT: 4842 F FLASH POINT: VARIABLE FLAMMABLE LIMITS: LEL-.23%
ODOR CHARACTERISTICS: NONE
INCOMPATABILITIES: STRONG OXIDERS, POWDERED METAL IS EXPLOSIVE

BIOLOGICAL PROPERTIES:

IDLH: 500 MG/M3 TLV-TWA: 0.5 MG/M3 PEL: 1.0 MG/M3 ODOR THRESHOLD:
HUMAN (LCLO): RAT/MOUSE (LC50): AQUATIC:
CARCINOGEN: N/A for solid metal TERATOGEN: MUTIGEN: N/A
ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

5 MG/M3 - SCBA, PREVENT SKIN/EYE CONTACT, WEAR IMPERVIOUS CLOTHING

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: HEXAVALENT CHROMIUM IS A CARCINOGEN AND POISONOUS BY INGESTION. POWDERED METAL MAY IGNITE IN AIR OR IN ATMOSPHERES OF CARBON DIOXIDE. CHROMITE DUST EXPOSURE MAY CAUSE MINOR LUNG CHANGES. CHROMIUM METAL AND TRIVALENT FORMS LESS TOXIC AND NONCARCINOGENIC

ACUTE SYMPTOMS: CONTACT DERMATITIS, ULCERATION OF SKIN & NASAL MUCOSA, IRRITATION OF EYES & MUCOUS MEMBRANES

CHRONIC SYMPTOMS:

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES
CONTACT LENSES SHOULD NOT BE WORN WHEN WORKING WITH THESE CHEMICALS

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: DILUTE WITH LARGE AMOUNTS OF WATER; INDUCE VOMITING; SEEK MEDICAL ATTENTION IMMEDIATELY

DISPOSAL/WASTE TREATMENT:

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [X] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [ ] CHRIS [X] SAX
[X] NIOSH/OSHA POCKET GUIDE
[ ] OTHER: ALDRICH, SITTIG

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JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 6-09-93

CHEMICAL NAME: LEAD

CAS NUMBER: 7439-92-1 DOT NAME/ID NO.: RQ:

SYNONYMS: WHITE LEAD, PLUMBUM

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: PB MOLECULAR WEIGHT: 207 PHYSICAL STATE: VARIABLE SPG/D 11.3 SOLUBILITY (H20): INSOLUBLE

VAPOR PRESS: VARIABLE FREEZING POINT: BOILING POINT: 3164 F FLASH POINT: INCOMBUST FLAMMABLE LIMITS: INCOMBUS

ODOR CHARACTERISTICS:

INCOMPATABILITIES: STRONG OXIDIZERS, PERIOXIDES, ACTIVE METALS

BIOLOGICAL PROPERTIES:

IDLH: VARIABLE TLV-TWA: .15 mg/M3 PEL: .05mg/m3 ODOR THRESHOLD: NONE

HUMAN (LCLO): RAT/MOUSE (LC50): AQUATIC: UNKNOWN

CARCINOGEN: INDEF TERATOGEN: EXP MUTIGEN: INDEF

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

5 MG/M3 HIGH EFFICIENCY PARTICULATE RESPIRATOR, OTHER CONCENTRATIONS - SCBA, AVOID SKIN AND EYE CONTACT

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: SUSPECTED CARCINOGEN. POISON BY INGESTION. MAY CAUSE LOSS OF APPETITE, ANEMIA, MALAISE, INSOMNIA, HEADACHE, IRRITABILITY, MUSCLE AND JOINT PAINS, TREMORS, FLACCID PARALYSIS, HALLUCINATIONS AND DISTORTED PERCEPTIONS, MUSCLE WEAKNESS, GASTRITIS AND LIVER

ACUTE SYMPTOMS: CUMULATIVE NEUROTOXIN-COMMONLY OCCURS FROM PROLONGED EXPOSURE, SYMPTOMS INCLUDE STOMACH DISTRESS, VOMITING, DIARRHEA, BLACK STOOLS, ANEMIA, NERVOUS SYSTEM EFFECTS

CHRONIC SYMPTOMS: 3 CLINICAL TYPES A-AILMENTARY-ABOMINAL PAIN, DISCOMFORT, CONSTIPATION OR DIARRHEA, METALLIC TASTE, LEAD LINE ON GUM, HEADACHE, B-NUEROMUSCULAR, MUSCLE WEAKNESS, JOINT/MUSCLE PAIN, DIZZINESS, INSOMIA, PARALYSIS C-ENCEPHALIC BRAIN INVOLVEMENT, STUPOR, COMA, DEATH, RARE REPRODUCTIVE EFFECTS, HUMAN EPID STUDIES HAVE CONCLUDED THAT LEAD IS A POSION TO MALE & FEMALE GERM CELLS;INCREASED

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: GIVE LARGE QUANTITIES OF WATER; INDUCE VOMITING; SEEK MEDICAL ATTENTION IMMEDIATELY

DISPOSAL/WASTE TREATMENT:

TOXIC FUMES OF LEAD

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [X] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [X] CHRIS [X] SAX [X] NIOSH/OSHA POCKET GUIDE

[ ] OTHER: ALDRICH, RTECS, SITTIG

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JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 6-03-93

CHEMICAL NAME: TOLUENE

CAS NUMBER: 108-88-3 DOT NAME/ID NO.: RQ:
SYNONYMS: PHENYL METHANE, METHYL BENZENE

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C6H5CH3 MOLECULAR WEIGHT: 92 PHYSICAL STATE: LIQUID SPG/D 0.867 SOLUBILITY (H20): SLIGHTLY
VAPOR PRESS: 22 MM FREEZING POINT: -139 F BOILING POINT: 231 F FLASH POINT: 40 F FLAMMABLE LIMITS: 1.27-7%
ODOR CHARACTERISTICS:
INCOMPATABILITIES: STRONG OXIDIZERS, NITRIC ACID, PEROXIDES

BIOLOGICAL PROPERTIES:

IDLH: 2000 PPM TLV-TWA: 50 PPM PEL: 100 PPM ODOR THRESHOLD: 0.17 PPM
HUMAN (LCLO): TCLO 200 PPM RAT/MOUSE (LC50): LCLO 400 AQUATIC: TLM 96: 100-10 PPM
CARCINOGEN: EXPER TERATOGEN: EXP MUTIGEN: EXPER
ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

1000 PPM-APR W/CHEMICAL CARTRIDGE;2000 PPM-SCBA, EXCEL-VITON, GOOD-POLYURETHANE, NEOPRENE/STYRENE;POOR-NEOPENE, BUTYL

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS: MAY CAUSE IRRITATION OF EYES, RESPIRATORY TRACT AND SKIN. MAY ALSO CAUSE FATIGUE, WEAKNESS, CONFUSION, HEADACHE, DIZZINESS AND DROWSINESS. EXPOSURE TO HIGH CONCENTRATIONS CAN CAUSE UNCONSCIOUSNESS AND DEATH. INHALATION MAY CAUSE DIFFICULTY SEEING IN

ACUTE SYMPTOMS: DIZZINESS, HEADACHE, VOMITING, NAUSEA,DIARRHEA, LIQUID IRRITATES EYES, DRIES SKIN

CHRONIC SYMPTOMS: KIDNEY AND/OR LIVER DAMAGE IF INGESTED, INHALATION MAY CAUSE ANEMIA, BONE MARROW HYPOPLASIA, DERMATITIS WITH SKIN CONTACT

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES
CONTACT LENSES SHOULD NOT BE WORN WHEN WORKING WITH THIS CHEMICAL

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: DO NOT INDUCE VOMITING; SEEK MEDICAL ATTENTION IMMEDIATELY

DISPOSAL/WASTE TREATMENT:

CO,CO2

REFERENCES CONSULTED: [ ] VERSCHUERAN [ ] MERCK INDEX [X] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [X] CHRIS [X] SAX
[X] NIOSH/OSHA POCKET GUIDE
[ ] OTHER: ALDRICH, SITTIG

ecology and environment. inc.

JOB NO ZT2051 HAZARD EVALUATION OF CHEMICALS PREPARATION/UPDATE DATE 5-29-90

CHEMICAL NAME: XYLENE ALL ISOMERS

CAS NUMBER: 1330 20-7 DOT NAME/ID NO.: FLAMMABLE RQ:

SYNONYMS: DIMETHYLBENZENE, XYLOL

CHEMICAL AND PHYSICAL PROPERTIES:

CHEMICAL FORMULA: C6H4(CH3)2 MOLECULAR WEIGHT: 106.20 PHYSICAL STATE: LIQUID SPG/D 086 SOLUBILITY (H20): INSOLUBLE

VAPOR PRESS: 9 MM FREEZING POINT: BOILING POINT: FLASH POINT: 31 F FLAMMABLE LIMITS:

ODOR CHARACTERISTICS: AROMATIC ODOR, SWEET

INCOMPATABILIITIES: STRONG OXIDIZERS

BIOLOGICAL PROPERTIES:

IDLH: 1000 PPM TLV-TWA: 100 PPM PEL: 100 PPM ODOR THRESHOLD: 20 PPM

HUMAN (LCLO): RAT/MOUSE (LC50): AQUATIC:

CARCINOGEN: TERATOGEN: MUTIGEN: EXPER

ROUTE OF EXPOSURE: [X] INHALATION [X] EYE CONTACT [X] SKIN CONTACT [X] INGESTION

HANDLING RECOMMENDATIONS (PERSONAL PROTECTIVE MEASURES):

APR DUSTY/WINDY CONDIT OR KNOWN HIGH CONCENT OR 1 BUT 5PPM SCBA, COVERALL PE TYVEK, GLOVES PVA, VITON PVA DEGRADES IN WATER

MONITORING RECOMMENDATIONS:

HEALTH HAZARDS:

ACUTE SYMPTOMS: VAPOR CAUSE DIZZINESS, HEADACHE, COUGH, PULMONARY DISTRESS/EDEMA, NAUSEA/VOMITING, ABDOMINAL CRAMPS, NARCOTIC IN HIGH CONCENT, MILD SKIN IRRITANT

CHRONIC SYMPTOMS: POSSIBLE LIVER AND/OR KIDNEY DAMAGE, PULMONARY CONGESTION, INGESTION MAY BE FATAL

FIRST AID

INHALATION: REMOVE TO FRESH AIR, GIVE ARTIFICAL RESPIRATION IF NEEDED, SEEK MEDICAL ATTENTION

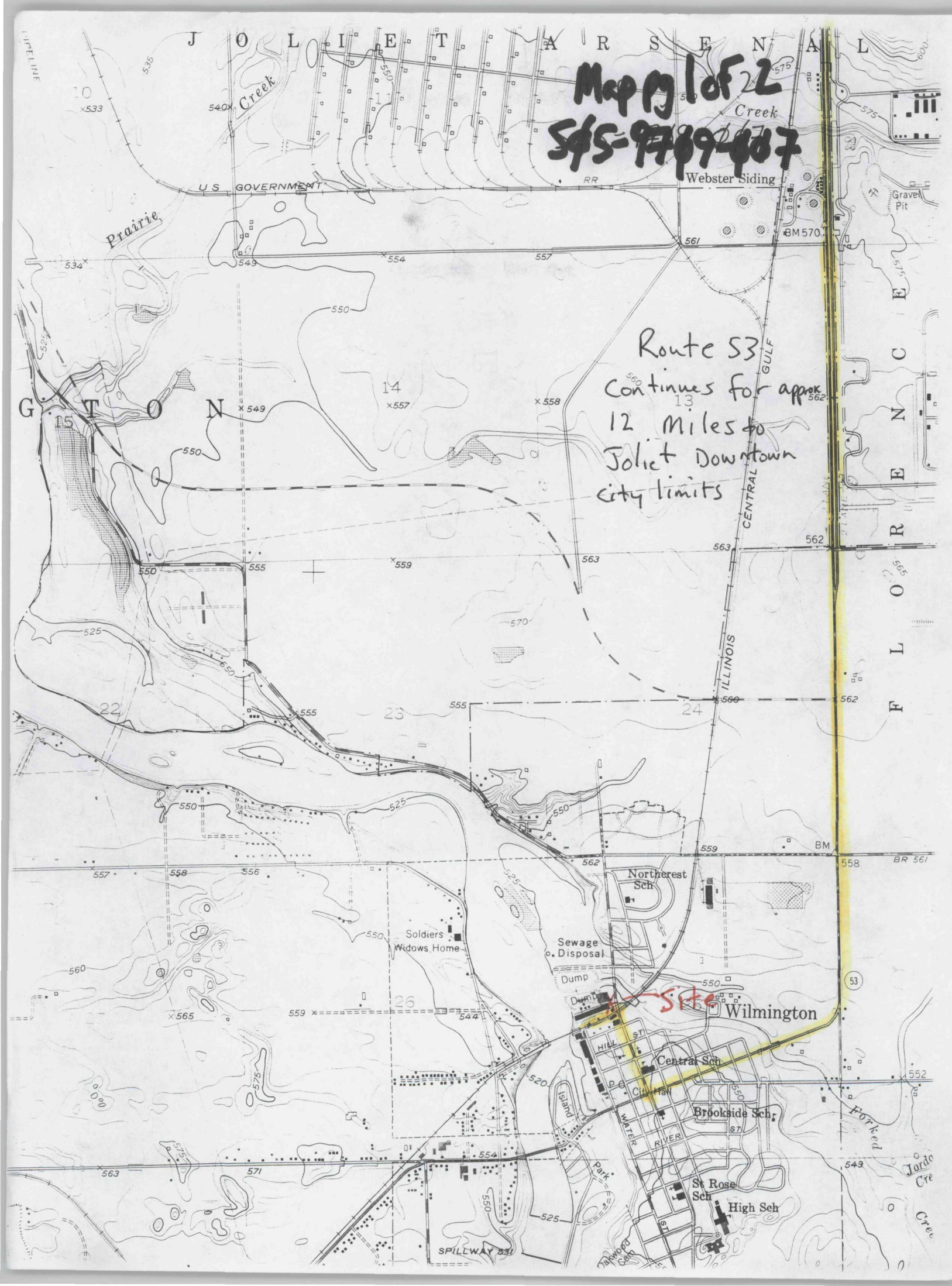
EYE CONTACT: FLUSH/RINSE WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING; WASH WITH SOAP AND WATER

INGESTION: DO NOT INDUCE VOMITING; SEEK MEDICAL ATTENTION

DISPOSAL/WASTE TREATMENT:

REFERENCES CONSULTED: [ ] VERSCHUERAN [X] MERCK INDEX [ ] HAZARDLINE [X] ACGIH [ ] TOXIC & HAZARDOUS SAFETY MANUAL [X] CHRIS [ ] SAX
[X] NIOSH/OSHA POCKET GUIDE
[ ] OTHER: RTECS, NIOSH GUIDES, SIGMA-ALDRICH

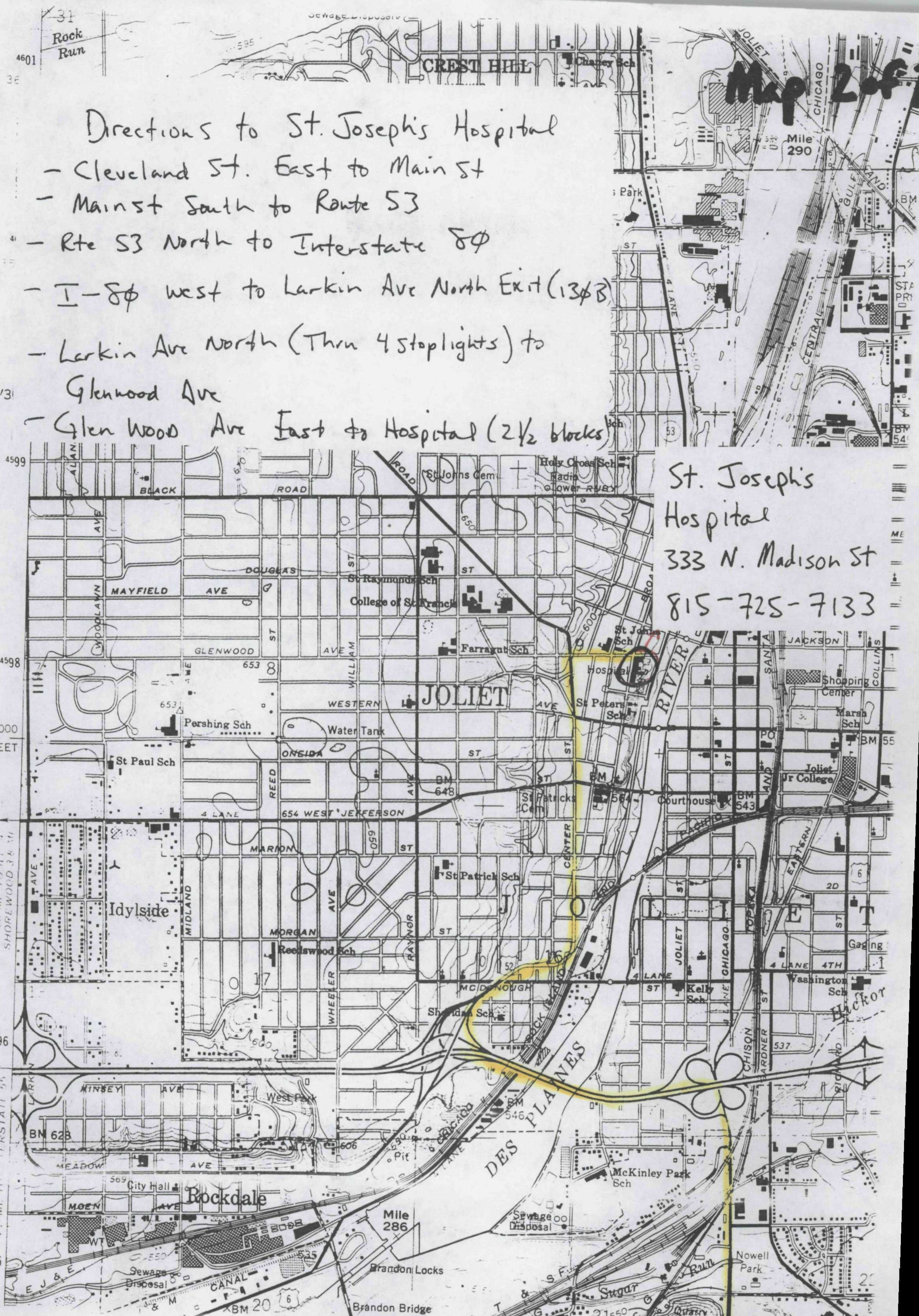

Map 1 of 2
S/S-97-99-007
Route 53
Continues for approx
12 Miles to
Joliet Downtown
city limits
Site
Wilmington
Webster Siding
Graver Pit
Northerest Sch
Soldiers Widows Home
Sewage Disposal
Dump
Central Sch
Brookside Sch
St Rose Sch
High Sch
Park
SPILLWAY 531
U S GOVERNMENT
Prairie
Creek
CENTRAL GULF
ILLINOIS
HIGH ST
WATER ST
RIVER ST
Island
Parked
BM 570
BM 558
BR 561
53

Map 2 of

Directions to St. Joseph's Hospital

- Cleveland St. East to Main St
- Main St South to Route 53
- Rte 53 North to Interstate 80
- I-80 west to Larkin Ave North Exit (130B)
- Larkin Ave North (Thru 4 stoplights) to Glenwood Ave
- Glenwood Ave East to Hospital (2 1/2 blocks)

St. Joseph's Hospital
333 N. Madison St
815-725-7133



DAILY SAFETY MEETING RECORD

INITIAL PROJECT SAFETY CHECKLIST

1. Emergency information reviewed? Y and made familiar to all team members? Y
2. Route to nearest hospital driven? Y and its location known to all team members? Y
3. Health and safety plan readily available and its location known to all team members? Y
4. E & E Drilling SOP on site? N/A and available for team member review? N/A

ATTENDEES

Meeting shall be attended by all personnel who will be working within the exclusion area. Daily informal update meetings will be held prior to work and when site tasks and/or conditions change.

Name (Printed)	Name (Signature)	Date	Representing (Company/Agency)
Brendan Mchennon	Brendan P. McInnon	9/26	E+E
KEITH LESNIAK	Keith Lesn	9/26	USEPA
Nabil Fayoumi	Nabil Fayoumi	9/26	E & E
SAM BORRIS	Sam Borris	9/26	USEPA
John Nordine	John Nordine	12-11-97	E&E
FRED GARTMAN	Fred Gartman	12/11/97	USEPA
Brendan P. Mchennon	Brendan P. McInnon	1/13/98	E+E
John Nordine	John Nordine	1/13/98	E&E
Meeting Conducted By:			

ecology and environment, inc.

SITE-SPECIFIC HEALTH AND SAFETY PLAN ACCEPTANCE

Project: Celotex

Project No.: KJ5162 | TDD/PAN No.: 5Ø5-97Ø9-ØØ7 / 7P07015I

Project Location: Wilmington, IL

Project Manager: Brendan McLennan | Project Director: Tom Kouris

The undersigned acknowledge that they have read and understood and agree to abide by the health and safety plan.

Name (Printed)	Name (Signature)	Date
Brendan		
John Nordine	John Nordine	12-11-97
Michelle Callahan	Michelle Callahan	8/4/98
Brendan McLennan	Brendan P. McLennan	8/4/98
Steven Faapan	Steven Faapan	8/4/98

ecology and environment, inc.

PURCHASE REQUISITION

CERTEX

Vendor: AMERICAN ENVIRONMENTAL NETWORK	Date: 10-1-97	PR No.:	
Address: 126 WEST CENTER COURT	Ship VIA:	Date Required:	
SCHAUMBURG, IL 60195	LIN:	PO No.:	
	Contract No.:	Account: 27	
Contact: J. FATA Phone: 847-705-0740	Project Number/PAN: 505-4709-805	7PA EDITAX	

Ship to: Ecology and Environment, Inc. 33 North Dearborn, Suite 900 Chicago, Illinois 60602 Attention: Dave Hendren	Billing Address: same as ship to

Item	Description	Quantity	Unit Price	Amount
A	DRUM: F-LISTED SOLVENTS	3	380.00	1140.00
B	DRUM: VOA - METHOD 8260	1	90.00	90.00
C	DRUM: SVOA - METHOD 8270	2	200.00	400.00
D	DRUM: PCBS - METHOD 8080/81	2	50.00	100.00
E	DRUM: TCLP - METALS	3	95.00	285.00
F	DRUM: FLASH POINT - METHOD 1010	7	10.00	70.00
G	DRUM: pH	7	5.00	35.00
H	SOLID: ASBESTOS - PLM	5	12.00	60.00
	REQUIRES OSWER Q1-II			
	TURNAROUND TIME:			
	VERBAL: 14 CALENDAR DAYS (10-15-97)			
	HARDCOPY: 21 CALENDAR DAYS (10-22-97)	PROJECT FORM		$2180.00

Purpose/Justification (Continue on Back if Necessary):

- LABORATORY ANALYSIS NOT AVAILABLE WITHIN START CONTRACT
- SOLICITED ONLY TECHNICAL BIDDERS
- LOWEST BID SELECTED

ALTERNATE SOURCES

Item	Vendor	Comment	Amount
A-H	GARNER LABORATORIES	HIGHER BID	2415.00
A-H	NET	HIGHER BID	2496.00
A-H	QUALITY ANALYTICAL	NO BID	—
A-H	ECOLOGY + ENVIRONMENT ASC	NO BID	—

Printed Name of Requestor: DAVID HENDREN Signature of Requestor: [signature]

Approved by/Date:

1. [signature] 10/8/97
2. [signature]
3. [signature]
4.

078099

ANALYTICAL BID REQUEST ANALYSIS

FROM: Ecology & Environment, Inc.
33 N.Dearborn, Suite 900
Chicago, IL 60602
ATTN: Dave Heudren

PHONE #: 312-578-9243
FAX #: 312-578-9345

TO: American Environmental Network
126 West Center Court
Schaumburg, IL 60195
ATTN: Jeff Fata

PHONE #: 847-705-0740
FAX #: 847-705-1567

ANALYTICAL TDD: S05-9709-805
BID DEADLINE: 9-30-97 ; 1000 hrs

PROJECT TDD:
SAMPLE RECEIPT DATE(est.): 9-30-97

Number of Samples	Matrix	Parameter/Method	Turnaround Time(Days)		MS/MSD	Detection Limit
			Verbal	Hardcopy		
3	Drum	F-Listed Solvents	14 days	21 days	NO	Meth.
1	Drum	VOA - method 8240/60				
2	Drum	SVOA - method 8270				
2	Drum	PCBs - method 8080/81				
3	Drum	TCLP - Metals				
7	Drum	Flash Point - meth. 1010				
7	Drum	pH				
5	Solid	Asbestos - PLM				

THIS SECTION MUST BE COMPLETED BY LABORATORY

Parameter/Method	Matrix	Base Analysis Cost	Surcharges		Total Unit Cost
			Rush TAT	MS/MSD	
F-Listed Solvents	Drum	$380.00			3@380.00=1140
VOA - METH. 8260	Drum	$90.00			1@90.00=90
SVOA - METH. 8270	Drum	$200.00			2@200.00=400
PCB's - METH 8082	Drum	$50.00			2@50.00=100
TCLP Metals	Drum	$95.00			3@95.00=285.00
Flash Point - meth. 1010	Drum	$10.00			7@10.00=70
PH	Drum	$5.00			7@5.00=35
Asbestos - PLM	Solid	$12.00			5@12.00=60

QA/QC COSTS: INCLUDED IN PRICE

QC Data Package: ✓
Other:
Is Your Company Classified as:
Small Business: YES (NO)
Small Disadvantaged Business: YES (NO)
Woman-owned Business: YES (NO)

Sample Disposal: ✓
Other: ✓
ID#:
ID#:
ID#:

Jeff Fata
Laboratory Signature

BID TOTAL: $2180.00

ANALYTICAL BID REQUEST ANALYSIS

FROM: Ecology & Environment, Inc.
33 N.Dearborn, Suite 900
Chicago, IL 60602
ATTN: ~~Dave Hendren~~ Nabil Fayoumi

PHONE #: 312-578-9243
FAX #: 312-578-9345

TO: Gabriel Environmental
1421 N. Elston Ave
Chicago IL 606 22
ATTN: Lazaro Lopez

PHONE #: 223-486-2123
FAX #: 773-486-0004

ANALYTICAL TDD: S05-9709-805
BID DEADLINE: 9-30-97 : 1800 hrs

PROJECT TDD: _____
SAMPLE RECEIPT DATE(est.): 9-30-97

Number of Samples	Matrix	Parameter/Method	Turnaround Time(Days)		MS/MSD	Detection Limit
			Verbal	Hardcopy		
3	Drum	F-Listed Solvents	14 days	21 days	NO	Meth.
1	Drum	VOA - method 8240/60				
2	Drum	SVOA - method 8270				
2	Drum	PCBs - method 8080/81				
3	Drum	TCLP - Metals				
7	Drum	Flash Point - meth. 1010				
7	Drum	pH				
5	Solid	Asbestos - PLM				

THIS SECTION MUST BE COMPLETED BY LABORATORY

Parameter/Method	Matrix	Base Analysis Cost	Surcharges		Total Unit Cost
			Rush TAT	MS/MSD	
F-Sol	3	300.00			900
VOA	1	120.00			120
PCBs	2	80.00			160
TCLP METALS	3	160.00			480
PH	7	10.00			70
Flash Point	7	15.00			105
Asbestos	5	20.00			100
QA/QC COSTS: SV.	2	240.00			480

QC Data Package: _____
Other: _____
Sample Disposal: _____
Other: _____

Is Your Company Classified as:
Small Business: YES/NO
Small Disadvantaged Business: YES/NO
Woman-owned Business: YES/NO

ID#: _____
ID#: _____
ID#: _____

BID TOTAL: 2415.00

---Laboratory Signature

ANALYTICAL BID REQUEST ANALYSIS

FROM: Ecology & Environment, Inc.
33 N.Dearborn, Suite 900
Chicago, IL 60602
ATTN: Dave Hendren

PHONE #: 312-578-9243
FAX #: 312-578-9345

TO: NET
850 W. Bartlett Road
Bartlett, IL 60103
ATTN: Mary Pearson

PHONE #: 630-289-3100
FAX #: 630-289-5445

ANALYTICAL TDD: S05-9709-805
BID DEADLINE: 9-30-97 ; 1000 hrs

PROJECT TDD:
SAMPLE RECEIPT DATE(est.): 9-30-97

Number of Samples	Matrix	Parameter/Method	Turnaround Time(Days)		MS/ MSD	Detection Limit
			Verbal	Hardcopy		
3	Drum	F-Listed Solvents	14 days	21 days	NO	Meth.
1	Drum	VOA - method 8240/60				
2	Drum	SVOA - method 8270				
2	Drum	PCBs - method 8080/81				
3	Drum	TCLP - Metals				
7	Drum	Flash Point - meth. 1010				
7	Drum	pH				
5	Solid	Asbestos - PLM				

THIS SECTION MUST BE COMPLETED BY LABORATORY

Parameter/Method	Matrix	Base Analysis Cost	Surcharges		Total Unit Cost
			Rush TAT	MS/MSD	
F-Listed Solvents	Drum	396.50	—	—	1,189.50
VOA- 8260	Drum	138.00	—	—	138.00
SVOA - 8270	Drum	182.00	—	—	364.00
PCB - 8082	DRUM	60.00	—	—	120.00
TCLP Metals	Drum	120.00	—	—	360.00
Flashpoint	Drum	19.50	—	—	136.50
pH	Drum	9.00	—	—	63.00
QA/QC COSTS: ASBESTOS		25.00	—	—	125.00

QC Data Package: 0
Other: 0

Sample Disposal: 0
Other: 0

Is Your Company Classified as:
Small Business: YES/NO
Small Disadvantaged Business: YES/NO
Woman-owned Business: YES/NO

ID#: —
ID#: —
ID#: —

Mary Pearson
Laboratory Signature

BID TOTAL: 2,496 00

ANALYTICAL BID REQUEST ANALYSIS

FROM: Ecology & Environment, Inc.
33 N.Dearborn, Suite 900
Chicago, IL 60602
ATTN: Dave Hendren

PHONE #: 312-578-9243
FAX #: 312-578-9345

TO: Recra Labnet Chicago
2417 Bond Street
University Park, IL 60466
ATTN: Eric Lang

PHONE #: 708-534-5200
FAX #: 708-534-5211

ANALYTICAL TDD: S05-9709-805
BID DEADLINE: 9-30-97 ; 1000 hrs

PROJECT TDD:
SAMPLE RECEIPT DATE(est.): 9-30-97

Number of Samples	Matrix	Parameter/Method	Turnaround Time(Days)		MS/ MSD	Detection Limit
			Verbal	Hardcopy		
3	Drum	F-Listed Solvents	14 days	21 days	NO	Meth.
1	Drum	VOA - method 8240/60				
2	Drum	SVOA - method 8270				
2	Drum	PCBs - method 8080/81				
3	Drum	TCLP - Metals				
7	Drum	Flash Point - meth. 1010				
7	Drum	pH				
5	Solid	Asbestos - PLM				

THIS SECTION MUST BE COMPLETED BY LABORATORY

Parameter/Method	Matrix	Base Analysis Cost	Surcharges		Total Unit Cost
			Rush TAT	MS/MSD	

QA/QC COSTS:
QC Data Package:
Other:
Is Your Company Classified as:
Small Business: YES/NO
Small Disadvantaged Business: YES/NO
Woman-owned Business: YES/NO

Sample Disposal:
Other:

ID#:
ID#:
ID#:

BID TOTAL: NO BID

Laboratory Signature

ANALYTICAL BID REQUEST ANALYSIS

~~FROM~~: Ecology & Environment, Inc.
33 N.Dearborn, Suite 900
Chicago, IL 60602
ATTN: Dave Hendren

PHONE #: 312-578-9243
FAX #: 312-578-9345

TO

~~TO~~ Analytical Services Center (E & E)
4492 Walden Drive
Lancaster, NY 14086
ATTN: Caryn Wojtowitz

FROM

PHONE #: 716-685-8080
FAX #: 716-685-0852

ANALYTICAL TDD: S05-9709-805
BID DEADLINE: 9-30-97 ; 1000 hrs

PROJECT TDD:
SAMPLE RECEIPT DATE(est.): 9-30-97

Number of Samples	Matrix	Parameter/Method	Turnaround Time(Days)		MS/ MSD	Detection Limit
			Veroal	Hardcopy		
3	Drum	F-Listed Solvents	14 days	21 days	NO	Meth.
1	Drum	VOA - method 8240/60				
2	Drum	SVOA - method 8270				
2	Drum	PCBs - method 8080/81				
3	Drum	TCLP - Metals				
7	Drum	Flash Point - meth. 1010				
7	Drum	pH				
5	Solid	Asbestos - PLM				

THIS SECTION MUST BE COMPLETED BY LABORATORY

Parameter/Method	Matrix	Base Analysis Cost	Surcharges		Total Unit Cost
			Rush TAT	MS/MSD	
Scheduling Conflict					

QA/QC COSTS:
QC Data Package:
Other:
Is Your Company Classified as:
Small Business: YES/NO
Small Disadvantaged Business: YES/NO
Woman-owned Business: YES/NO

Sample Disposal:
Other:
ID#:
ID#:
ID#:

C Wojtowicz
Laboratory Signature

BID TOTAL: NO BID

Celotex Corporation
ILD 981961634

TABLE 4-1
SUMMARY

SAMPLING POINT	G101	G102	G103	S101	S102	X101	X102D	X103	X104D	X105D	X106	X107	X108
	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89	11-20-89
PARAMETER													
VOLATILES													
Methylene Chloride	--	--	--	--	--	--	--	2.00J	2.00J	4.00J	1.00J	--	--
Acetone	15.00B	68.00B	25.00B	--	60.00B	--	--	5.00J	--	44.00J	230.00D	15.00J	--
2-Butanone (MEK)	--	--	--	--	--	--	--	--	--	14.00	56.00	--	--
Toluene	--	--	--	--	--	31.00	400.00J	--	--	--	57.00	--	--
SEMIVOLATILES													
Phenol	--	--	--	--	--	430.00J	--	--	--	--	--	--	--
4-Methylphenol	--	--	--	--	--	1100.00J	840.00J	--	--	--	--	--	--
Benzoic acid	--	--	--	--	--	840.00J	--	--	--	--	--	290.00J	--
Naphthalene	--	--	--	--	--	56.00	340.00BJ	--	--	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--	--	1400B	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	140.00J	--	--	--	--	--	--	--
Dibenzofuran	--	--	--	--	--	50.00J	--	--	--	--	--	--	--
Diethylphthalate	--	--	0.40J	0.10J	--	--	--	28.00J	--	--	--	--	--
Fluorene	--	--	--	--	--	78.00J	--	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	140.00J	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	790.00BJ	110.00BJ	75.00BJ	8.00BJ	--	--	99.00BJ	90.00BJ
Anthracene	--	--	--	--	--	2000.00BJ	--	12.00BJ	--	--	--	--	--
Di-n-Butylphthalate	--	--	--	--	--	--	480.00BJ	87.00BJ	7.00BJ	--	--	17.00BJ	13.00BJ
Fluoranthene	--	--	--	--	--	9400.00B	--	100.00BJ	16.00BJ	--	--	150.00BJ	150.00BJ
Pyrene	--	--	--	--	--	7400.00B	--	86.00BJ	24.00BJ	--	12000.00J	210.00BJ	170.00BJ
Butylbenzylphthalate	--	--	--	--	--	--	830J	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--	2600.00BJ	--	--	--	--	--	390.00BJ	140.00BJ
Chrysene	--	--	--	--	--	2900.00B	--	--	--	--	--	--	110.00BJ
bis(2-Ethylhexyl)phthalate	1.00J	0.20B	0.80J	--	--	3800.00B	5500B	--	--	55.00BJ	--	--	110.00BJ
Benzo(b)fluoranthene	--	--	--	--	--	930.00J	--	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--	670.00J	--	--	--	--	--	--	--
PESTICIDES													
Heptachlor epoxide	--	--	--	--	--	--	--	--	--	--	--	3.50J	--
Dieldrin	--	--	--	--	--	--	4.00J	1.00J	--	--	--	18.00J	--
4,4'-DDE	--	--	--	--	--	--	--	--	--	--	--	--	1.00J
4,4'-DDT	--	--	--	--	--	--	--	--	--	--	--	22.00J	--
gamma-Chlordane	--	--	--	--	--	--	--	--	--	--	--	7.00J	--
Aroclor-1260	--	--	--	--	--	550.00J	--	--	--	--	--	--	--
INORGANICS													
Aluminum	--	--	80.00B	175.00	162.00	8000.00	4200.00	6300.00	16600.00	5200.00	1470.00	8400.00	3200.00
Antimony	--	--	--	--	--	4.60	1.2	--	0.60B	--	--	0.60B	--
Arsenic	3.00B	--	51.00	--	--	1.70B	0.9B	2.20	8.60	3.50	1.8	11.00	3.00
Barium	260.00	47.00B	690.00	43.00B	43.00B	200.00	74.00	66.00	170.00	61.00	22.00B	98.00	74.00
Beryllium	--	--	--	--	--	--	--	0.50B	1.40	0.50	0.30B	0.80B	0.41B
Cadmium	--	--	2.00B	--	15.00B	--	--	3.60	9.30	3.00	0.80B	7.60	1.70
Calcium	155000.00	115000.00B	110000.00B	99000.00	98000.00	20700.00	4600.00	11200.00	34900.00	3640.00	3900.00	18700.00	4100.00
Chromium	8.00B	5.60B	8.00B	6.00B	5.80B	33.00	16.00	16.00	28.00	8.90	3.60	18.00	4.70
Cobalt	2.40B	1.80B	10.00	2.80	3.20B	2.10B	--	--	14.00	4.90B	0.90B	7.90B	3.00B
Copper	--	2.00B	--	2.40B	2.40B	120.00	45.00	14.00	51.00	10.00B	7.40	32.00	7.70
Iron	13500.00	336.00B	14000.00B	317.00	313.00	4900.00	3000.00	12600.00	32600.00	13500.00	3100.00	24700.00	6700.00
Lead	1.00B	--	--	--	--	150.00	56.00	32.00	65.00	13.00	20.00	85.00	45.00
Magnesium	68000.00	45700.00	67000.00B	41000.00	41000.00	2200.00B	1160.00B	6900.00B	12800.00	13000.00	1700.00	6700.00	1500.00
Manganese	187.00	4.60B	220.00B	15.00B	15.00B	500.00	150.00	370.00	1100.00	560.00	44.00	600.00	370.00
Mercury	--	--	--	--	--	0.16	0.17	--	0.15	0.11	--	0.14	.02B
Nickel	--	--	27.00B	--	--	7.10B	2.9B	11.00	29.00	10.00	12.00	34.00	5.80B
Potassium	29000.00	380.00B	4300.00B	1300.00B	1300.00B	--	--	680.00B	1500.00	320.00B	120.00B	1100.00B	550.00B
Silver	--	--	--	--	2.30	--	--	--	--	--	--	--	--
Sodium	19000.00	128000.00B	89000.00	11000.00	11000.00	390.00	1000B	230.00B	160.00	150.00B	--	--	--
Thallium	--	--	--	--	--	--	--	--	0.30	--	--	--	--
Vanadium	--	--	--	--	--	11.00B	7.7B	16.00	36.00	9.50B	^19.00	22.00	8.70B
Zinc	12.00B	--	--	--	--	570.00	140.00	71.00	250.00	51.00	58.00	250.00	58.00
Cyanide	--	--	--	--	--	43.00	10.6	--	--	--	--	--	--
Sulfate	219000.00	68000.00B	36000.00B	85000.00	88000.00	--	--	--	--	--	--	--	--

-- indicates compound was analyzed but not detected.

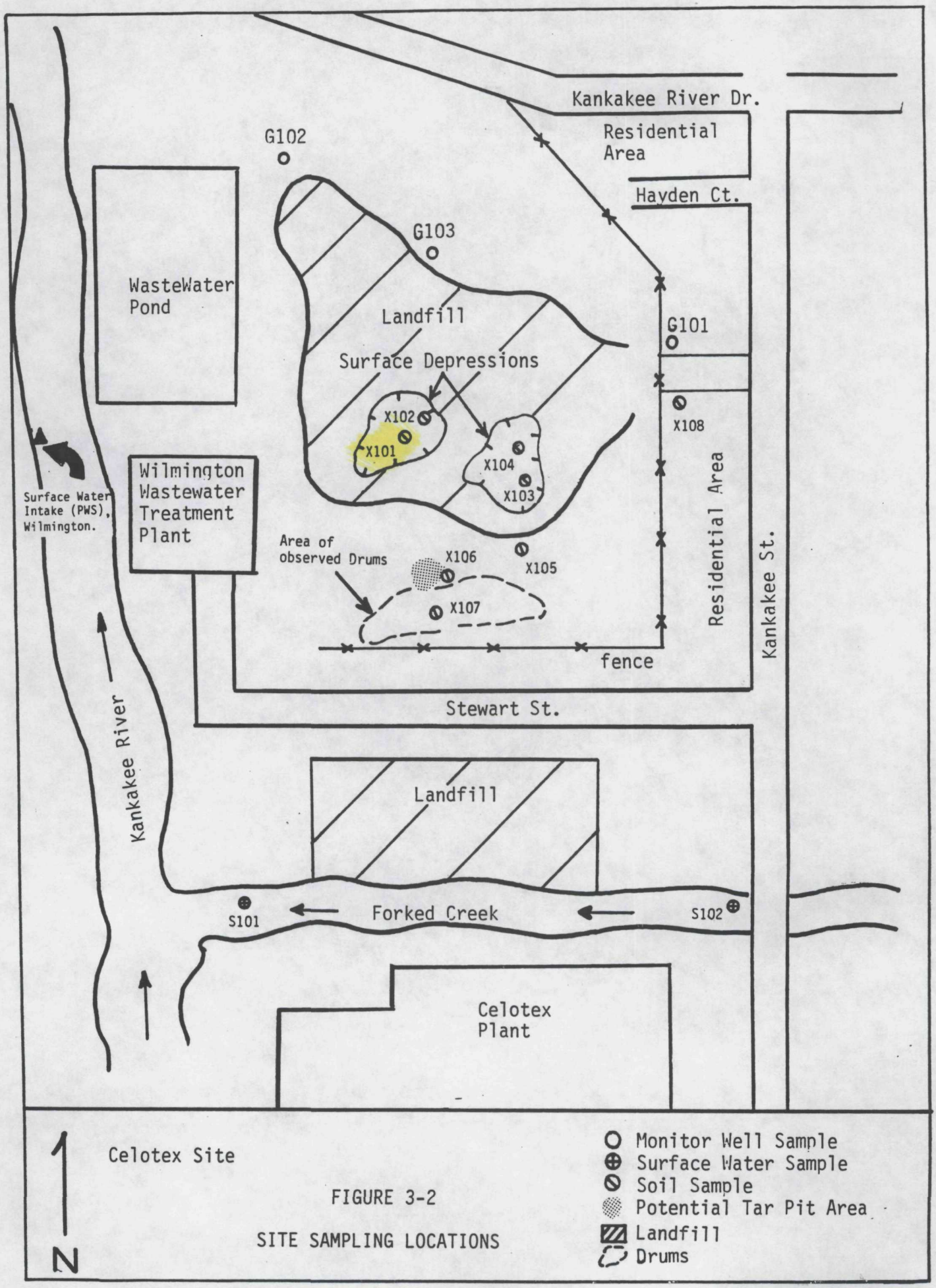


FIGURE 3-2

SITE SAMPLING LOCATIONS

Map not to Scale